**Table of Contents**

Table of Contents

1. WARNING: READ ALL INSTRUCTIONS CAREFULLY! .............................................................. 2
2. Software Installation ............................................................................................................. 2
3. Hardware Installation ......................................................................................................... 2
4. Single Channel Version 3 Devices ..................................................................................... 3
5. Dual Channel (version 2 devices) ....................................................................................... 5
6. Full Setup Instructions ....................................................................................................... 6
7. Setting Threshold ............................................................................................................... 10
8. Identifying Knocks ............................................................................................................ 14
9. Monitor Mode .................................................................................................................... 16
10. Bypassing Audio Filter .................................................................................................... 16
11. Sound Troubleshooting .................................................................................................... 17
WARNING: READ ALL INSTRUCTIONS CAREFULLY!

Software Installation
Your license key and link to download Knock Monitor Pro would have been provided via email upon purchase. Run the setup exe file and install to the location of choice. It is recommended you leave the installer at the default settings. Software can be otherwise downloaded at Tunernerd.com/downloads

Hardware Installation
WARNING: Be sure to follow the instructions below. Also, be sure you check the voltages of the wires before probing with the 5V inputs. 14 volts into 5V input, even with protection, will damage device and could render it useless.

Cables
The unit provides a 6ft USB cable and 6ft Audio cable from device to the PC. The unit itself is designed to be placed inside the engine bay (pick a relatively cool spot) and then extend the USB and audio cable inside the car through a window. The sensor harness is 4 feet long.

Single Channel vs Dual Channel
For single channel use on a dual channel unit, use mic input but be sure to test the correct knock sensor connector (KS-1) is being used.
Single Channel Version 3 Devices

**CONNECTION DIAGRAM**

Follow this diagram to connect your Knock Monitor Pro V3

- Yellow - (+) RPM source
- Black - (-) RPM source
- Blue - map sensor signal (optional)
- Green - Wideband 0-5v (optional)
- Knock sensor 1
- Black wire - GROUND

[Diagram showing connections between components]
Single Channel (Version 2 Devices)

CONNECTION DIAGRAM

Follow this diagram to connect your single channel Knock Monitor Pro (Elite, STD or Essential).

- Black - (-) RPM source
- Yellow - (+) RPM source
- Blue - map sensor signal (optional)
- Green - Wideband 0-5v (optional)
- Knock sensor 1
- Black wire - GROUND
- Red wire - DO NOT USE

USB Sound Device

8-ft long cables
Dual Channel (version 2 devices)

Connection Diagram

Follow this diagram to connect your dual channel Knock Monster Pro (STD or Elite+)

- Black wire: GROUND
- Red wire: DO NOT USE

Use LINE for dual knock sensor
Use MIC for single knock sensor (use K1 connector only!)
**Full Setup Instructions**

1. Connect your probes to your RPM source - coilpack or injector. Follow these wire color codes:
   a. Yellow In pair – Positive RPM source
   b. Black in pair – Negative RPM source
      i. Tip: When using Injector as RPM source, for most cars the injector positive is usually constant (+12v) and the ground is the switched pulsed signal.
   c. Blue wire - MAP sensor signal
   d. Green - Wideband controller (5V signal) (AEM - white wire, Innovate - yellow wire)
   e. The other wire on that two-wire loom is 5V output from Knock Monitor Pro.
   f. Black single – Sensor ground source – Important when using Map and AFR sensors!

2. Connect your knock sensor
3. Connect USB cable to your computer and the knock monitor.
4. Connect the 6ft audio cable to your computer and the knock monitor sound device
5. In Knock Monitor Pro, click the **Settings > Logger** menu item.

![Logger Settings](image)

6. a. Select the COM Port that the device is connected to and select the engine speed configuration.
   b. For smoothing, use 30-35+ when injector is the RPM source, use 20 for Coilpack (preferred).

7. Set your map sensor multiplier and offset. You can use the calculator if you are unsure.
8. If connected, set your AFR sensor multiplier and offset. Please fine tune offset number until it matches your gauge.
9. Save and exit the logger settings window
10. Select the input device which will provide the knock sensor source:

11. Finally, visit the input device settings (microphone) in windows and turn the volume down to 0 or 1. This step is extremely important. Also, you may want to check on this any time you insert the audio USB into a different port.

12. **(continued on next page)**
**TIP:** It is recommended that you disable Line or Microphone when either is not in use.
Then turn off AGC (auto gain control) *(Does not apply to V3 devices)*

**NOTE!**

Sabrent sound card users, this step is extremely important. Please never run the knock monitor with AGC on. If the recording seems too loud it most likely is AGC causing issues. The Sabrent sound card.

(Continued next page)
Select the preferred device (Microphone or Line input) from the device menu:

Then finally, allow the software to set the input volume on the device (windows settings)

**Setting Threshold**
1. Right click the graph on the right and choose Flatten.
2. Set your engine to safe timing and fueling levels.
3. On the left, set the bore size of your engine’s cylinder. This will set the frequency.
4. Filter boost value should be at around 70, give or take.

5. Start your car. Take notice if the RPM displayed in the software is correct. Also note the AFR and Boost values (if connected). Please note: no sound info will be displayed until recording has started.
6. Press record.
7. While in neutral, give the car some revs to ensure the sound level is being picked up by the software. You should be able to hear this in your headphone.
   • If no sound, please refer to Sound Troubleshooting section of this document.
   • The sound should be quiet at this point and gets louder as the engine speed is increased

*(continued next page)*
8. Take a wide-open throttle pull in the gear you plan to monitor.

9. Your graph should look like this:

In this log, we started from 1600 RPM and ended at 7000 RPM. Notice the green dots, which represents combustion sound level, follow an almost predictive path, ranging from 2% to 52%. If your levels at redline are much higher than 50% of the chart, reduce the Amplify knob. Alternatively, if your combustion levels at redline are much lower than 50%, increase the Amplify knob and hit replay to verify the new levels. This is to maximize accuracy of the filter.

9. Finally, generate your threshold by clicking the chart > **Set as threshold** > last pull, left channel (or right channel). This will create a threshold based on the last pull or replay of the recording:

Notice how the threshold is a margin higher than the green dots? This is how it should be.
10. If your log has **knocks**, setting the threshold will appear as an erratic line as shown below:

![Graph showing erratic line indicating knocks]

However, all is not lost. Notice how the combustion volume increases progressively between 2400 and 4000-4500 RPM? Your log should display something similar. Using your mouse, click and drag the white line back towards a more predictive path as below:

![Graph with white line adjusted towards predictive path]

Your threshold for this car has been set. You can save this setting by click on **File>Save Config**.
Identifying Knocks

Knocks will appear on the graph as orange stars above the threshold. The software will pretty much use the threshold set to determine what is knock from regular combustion.

Outside of what the chart shows, you can still identify knock using the waveform view. Knock spikes will jump above the threshold line. Look for spikes in the waveform as is displayed in this photo:
Audible Beep When knocking

Knock Monitor Pro can produce an audible beep whenever knock is found during a log. Check the following menu option to enable.
Monitor Mode
Optionally, you may choose to log without saving the sound files. Uncheck the following menu option to set that preference.

Bypassing Audio Filter
You may be interested to hear the unfiltered audio as it is from the knock sensor. You may disable the filters as follows:
Sound Troubleshooting

Problem: I’m hearing a whining sound / alternator while and the sound quality is poor

a. Check that the audio jack is inserted completely into each end
b. You may be using a dual channel sound device with mic input instead of line input
   i. If you desire to use mic input in a dual channel device, use the KS-1 sensor connector as only this sensor connectors will work when used with mic in.

Problem: I’m hearing a ticking noise that sounds like the injector.

c. Turn the input device (microphone) volume down as was instructed earlier in the manual.
d. Some amount of ticking is normal, as the engine is revved higher it will dissipate
e. Contact us via the facebook page if problem persists.

Problem: Not hearing engine, not seeing any sound indication on screen

- Check to ensure the right sound device is selected.
- Check connection between device and knock sensor

Problem: I’m seeing sound indication on screen, but not hearing anything

a. Check to ensure your headphone is plugged into the default windows playback device
   a. If you headphone is plugged into the same device as your knock sensor / TKM, then use Windows to set this device as your default playback device.
   b. Check the sound mixer volume in Windows

Problem: I get this error message:

![Error Message](image)

a. This can be attributed to a microphone privacy setting. Go to start menu and type Microphone privacy. Allow all apps.

   The setting should look like this.